

REMARKS

This Amendment is responsive to the Office Action mailed August 14, 2003. In that Action, claim 1 was rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,185,559 to Brin et al. (Brin). Additionally, claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Brin. Claims 2-12, 14, 16-21 and 23-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brin in view of Hogg and Craig, "Introduction to Mathematical Statistics", 5<sup>th</sup> ed. Lastly, claims 13 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brin in view of Hogg and Craig, and further in view of U.S. Patent No. 5,179,699 to Iyer et al. (Iyer).

The Present Application:

For purposes of review, the subject application is directed to a method and system for database administration and replication. A random sampling algorithm is built in or integrated with a database management system to provide very efficient partition analysis on very large databases, accurate to within a few percentage points. The accuracy is not affected by the size of the database but is, instead, determined primarily by the size of the sample of the database, thereby reducing the amount of time necessary for analysis, permitting a frequent and timely analysis of the database. One benefit obtained from the present system as a result of integrating the sampling facility with the relational database is a reduction in the number of system calls required to perform an approximation partition analysis.

The Office Action:

The Examiner took the position, with regard to independent claim 1, that Brin discloses a method for administration and replication of a database including the step of providing a database management system with a built-in random sampling facility integrated into said database management system. The Examiner referred applicants to Brin at col. 3, lines 22-24.

Brin, however, at column 3, lines 22-24 is merely describing a prior-art data mining technique disclosed by H. Toivonen in the paper *Sampling Large Databases for Association Rules*, proceedings of the 22<sup>nd</sup> VLDB Conference, Bombay, India, 1996 (Brin, col. 2, lines 61-67). There is no teaching in either Brin or in Toivonen as reported by Brin of a random sampling facility integrated into a database management system. There is no mention of database management or of sampling in general except with reference to the prior art, which Brin refers to as having shortcomings with respect to accuracy (Brin, col. 3, lines 24-27).

With regard to the rejection of claim 1, it is well recognized that "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegoal Brs. v. Union Oil co. of California, 814 F.2d 628, 632, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In this regard, it is respectfully submitted that the Examiner has not made a *prima facie* case of anticipation and has not met the required burden to sustain the rejection.

With respect to Brin and the Toivonen paper cited within Brin, neither discloses or describes a database management system, much less a built-in random sampling facility. The teachings of Toivonen and Brin are directed to data mining methods and systems which are described as entities separate from the database management system, perhaps themselves utilizing a database management system to access the data stored therein, but not mentioning a database management system anywhere within the cited Brin reference. Further, combining Toivonen with Brin is not proper because Brin teaches against the random sampling disclosed by Toivonen, and the combination of Toivonen with Brin would destroy the effectiveness of Brin. Brin specifically teaches reading database records in a seriatim manner (Brin, col. 4, lines 1-2 and 22-26) which is in direct conflict with random sampling as taught by Toivonen.

Independent claim 1 recites a method for administration and replication of a database and includes the limitations of providing a database management system with a built-in random sampling facility integrated into said database management system, and executing said random sampling facility from within the database management system to perform a replication operation on said database.

Applicants respectively submit that Brin does not teach, suggest, or fairly disclose a random sampling facility built into a database management system, and even teaches against the use of random sampling facilities for data mining (Brin, col.2, lines 22-27). For at least these reasons, it is respectfully submitted that independent claim 1 distinguishes over Brin.

With reference to independent claim 15, the Examiner again asserted that Brin teaches providing a database management system with a built-in random sampling facility integrated into said database management system. The Examiner further asserts that Brin teaches using random sampling to determine the pattern of the database. Applicants' attention was invited to Brin at col. 3, lines 22-24.

It is clear, however, that Brin actually teaches away from using random sampling because sampling trades off accuracy against efficiency (Brin, col. 3, lines 22-31). The portion of the Brin patent cited by the Examiner (col. 3, lines 22-24) is in reality a discussion of the shortcomings of the prior art method(s), particularly the shortcoming of Toivonen.

Brin simply does not teach or suggest integrating a random sampling facility into the database management system. Brin is focused solely on a data mining technique and does not teach or suggest the use of random sampling in the disclosed method and apparatus for dynamically counting large itemsets as was argued with respect to the rejection of independent claim 1. For these reasons, it is submitted that independent claim 15 distinguishes over Brin.

With reference to independent claim 6, the Examiner also asserted that Brin teaches providing a database management system with an integrated random sampling facility. The Examiner then combined Brin with the teachings of Hogg and Craig with respect to random sampling.

First, with respect to the integrated random sampling facility, as explained with respect to independent

claim 1, Brin does not teach a database management system having an integrated random sampling facility but, instead, describes data mining techniques that are used external to a database management system. Secondly, as argued above, it is clear that Brin teaches away from using random sampling because sampling trades off accuracy against efficiency (Brin, col 3, lines 22-31). For at least these reasons, it is submitted that independent claim 6 distinguishes over Brin.

Dependent claim 7 has been amended to correct a minor typographical error. For the above-described reasons it is respectfully submitted that independent claims 1, 6 and 15 and dependent claims 2-5, 7-14 and 16-24, depending respectively therefrom, patentably define over the cited references and are in condition for allowance.

CONCLUSION

In view of the comments and arguments presented above, applicants respectfully submit that all pending claims are in condition for allowance.

Allowance of all pending claims and early notice to that effect is respectfully requested.

Respectfully submitted,

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